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ABSTRACT

Past reading research suggests that measures of reading comprehension should be made context dependent. Reading comprehension test questions that are context dependent are best answered by examinees only after the accompanying passages have been read. Recently, there has been some disagreement concerning the exact importance of context dependence in the measurement of reading comprehension. Empirical research generally has used an item analysis approach to insure context dependence of reading measures; item flaws are considered sources of variance to be removed from reading measures. The logical perspective in reading research assumes that context dependent and context absent test performance are related, and that scores obtained without the benefit of contextual passages can reflect overall reading ability. Research has shown that context dependent and context absent item answering skills are significantly correlated, suggesting that the importance of context dependence in measures of reading comprehension is low. (SRT)

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IMPORTANCE OF CONTEXT DEPENDENCE IN THE MEASUREMENT OF READING SKILLS

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Running Head: IMPORTANCE OF CONTEXT DEPENDENCE IN THE MEASUREMENT OF READING SKILLS

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Abstract

Past reading research suggests that measures of reading comprehension be made context dependent. Context dependence of reading comprehension test questions implies that they can be answered by competent examinees only after accompanying passages have been read. Context dependence has been measured with several different designs which require examinees to answer questions both in the conventional, passages in manner and in the unconventional, passages out manner. Context dependence has been viewed from empirical and logical perspectives. A brief review of the research in each perspective is presented in light of its strengths and weaknesses.

Importance of Context Dependence in The Measurement of Reading Skills

Reading researchers have in the past suggested that measures of reading comprehension be made context dependent (Farr & Smith, 1970; Oaster & Hanna, 1978; Pyrczak, 1974, 1975-1976; Tuinman, 1973-1974). Context dependence (CD) is a matter of degree. An optimally CD reading comprehension question is one on which competent examinees perform best after the accompanying passage has been read and on which their performance is nearer the chance level when the associated passage has not been read. Recently, there has been some disagreement concerning the exact importance of CD in the measurement of reading comprehension (Hanna & Oaster, 1978). This disagreement is not surprising in light of the differing definitions, methods of quantifying terms, and designs employed to study CD which have proliferated.

Although previously unarticulated, in retrospect it appears that researchers have viewed the question of CD from more than one perspective. According to one of these perspectives a major assumption is that validity of reading measures is reduced if variables other than passage comprehension, which account for reliable variance in measures of reading, are not themselves reading related. Because context-absent (CA) scores have been shown to exceed expected chance levels (Tuinman, 1973-1974) and to be poorly correlated with context-present (CP) scores (Preston, 1974) some researchers have assumed that measures of reading comprehension should be made more CD.

The Empirical Perspective

Research which fits this first perspective has generally suggested an item analytic approach to insure CD of reading measures. Item flaws are seen as sources of variance whose influence should be removed from reading measures. In the literature, three item flaws are discussed (Oaster & Hanna, 1978) and several formulas for determining CD have been proposed (Hanna & Oaster, 1978-1979). Researchers have suggested that these formulae or indexes be used, in item analyses, to improve the CD of reading measures. Controversial issues arising out of the item analytic approach to insuring CD are, in part, attributable to the absense of an appropriate and generally accepted definition of CD upon which to base quantitative indexes.

Early definitions of CD focused on the difference between examinees' performance on items presented without their associated passages and examinees' expected chance (C) performance on the item. Tuinman (1971) provided the following definition of dependence: "A test is optimally reading dependent if the probability of the item being answered correctly by someone who has not read the passage to which the item pertains does not exceed chance expectations." (p. 289) An index compatible with these early notions of CD was offered by Pyrczak (1972). His index is computed for a given item by subtracting the item's mean CA score from the item's mean expected chance score ($X/C - X/CA$).

That early definition (Tuinman, 1971) and index (Pyrczak, 1972), by focusing on the difference beteen chance level and CA examinee performances, delimited one corner of a controversial arena. Tuinman

(1973-1974) demarked another corner, so to speak, in focusing on the difference between CA and CP examinee performances on a given item. His shift of focus was reflected in the associated index which he suggested. Tuinman's index is computed for a given item by subtracting from unity the ratio of the item's mean CA score to the item's mean CP score ($1 - X_{CA}/X_{CP}$). Recognizing the controversy generated by these differing foci Hanna and Oaster (1978-1979) have refocused on two other corners of the CD arena: item difficulty (mean CP incorrect score) and the mean expected chance score for a given item.

Hanna and Oaster (1978-1979) have organized and connected the four concepts of C, CA and CP examinee performances, and item difficulty or non-dependence (ND). They have also suggested means of quantifying the four concepts. Only when these four concepts are in focus can the CD arena be completely circumscribed (see Hanna & Oaster 1978-1979 for a more elaborated explanation).

The Logical Perspective

At this point it should be emphasized that the distinction between empirical and logical perspectives is post hoc and involves what appear to be different underlying assumptions. That is, the CD issues and literature discussed under the empirical perspective appear to involve an a priori assumption only that CP and CA examinee performance may be related. Discussion now turns to those who appear willing to assume, at the outset, that CP and CA examinee performance are related.

Pyrczak (1974) has indicated "it is possible that the scores obtained in the absence of the passages, to a large extent, reflect reading

ability." (p. 347). In a more definite tone, Farr (1978) has opined that "The reading of test items--including the alternative responses--as well as the relating of one test item to another is reading. Test items, even when they are somewhat independent of test passages, constitute reasonable reading comprehension measures." (p. 1).

Like test of reading, other achivement tests typically involve an item stem followed by several options. One of these options, to be indicated as correct by the examinee, generally answers a question asked in the stem or completes a statement started there. If asked "Must one be able to read to do well on these other achievement tests?" One would answer "Yes!" In this sense then, completing statements or answering questions, which constitute reading comprehension test items, necessitate comprehension. This does not mean, ipso facto, that reading comprehension, as conventionally conceived and measure, must be highly correlated in a statistical sense, with CA item answering skills.

Conclusions

Preston (1964) working with an atypical measure of reading comprehension found it to be significantly correlated with CA item answering skills ($r = .20$) among graduate students. This meager scrap of partially relevant data and a supplement of subsequently founded intuition seem to have lead others to conclude that the two variables were more than trivially related. While this conclusion would seem to preclude further research into CD, interestingly enough, it did not.

Hanna and Oaster (1978) employing a conventional measure of reading comprehension have shown that CP and CA item answering skills are well

correlated (r = .59 to .64). Coupling these and other (Hanna, 1979) empirical data with the logical analysis that "Test items,... constitute reasonable reading comprehension measures." (Farr, 1978, p. 1) strongly suggests the importance of CD in measures of reading comprehension is low. How this conclusion is influenced by factors such as reading rate may well deserve further scrutiny.

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